If you are using a printed copy of this procedure, and not the on-screen version, then you MUST make sure the dates at the bottom of the printed copy and the on-screen version match.
The on-screen version of the Collider-Accelerator Department Procedure is the Official Version.
Hard copies of all signed, official, C-A Operating Procedures are kept on file in the C-A ESHQ Training Office, Bldg. 911A.

C-A OPERATIONS PROCEDURES MANUAL

ATTACHMENT

8.15.3.d Instructions for Chipmunk Installation Request Form (BNL F 2948A)

C-A OPM Procedures in which this Attachment is used.		
8.15.3		

Hand Processed Changes

HPC No.	Date	Page Nos.	Initials
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

Approved: ***Signature on File*** _____
Collider-Accelerator Department Chairman Date

V. Castillo

8.15.3.d Instructions for Chipmunk Installation Request Form (BNL F 2948A)

1. Purpose

This document facilitates the completion of BNL Form F 2948A, Chipmunk Installation Request.

2. Responsibilities

The personnel or group involved in filling each section is as follows: (LP) = Liaison Physicist, (ACG) = Access Controls Group, (RCD) = Radiological Controls Group, (MC) = Main Control Group and (CG) = Controls Group.

3. Prerequisites

None

4. Precautions

None

5. Procedure

5.1 Completion of Upper Portion of White Form

5.1.1 Installation Request No. (ACG)

- Request numbers are generated by the ACG representative for new Chipmunk installations only. These numbers increase sequentially.
- Replacement requests with different installation parameter(s), 5.1.6.1 thru 5.1.6.6, from the original Request get a letter appended to the original Request number.

5.1.2 Required Date of Installation (LP)

- This is the date by which the Chipmunk installation must be completed and operating.
- "Operating" requires testing to the Main Control Room (MCR) if the Chipmunk is linked to the computer.

5.1.3 Location (LP)

- The Facility: AGS, Booster, Linac, Beam Line No., Experimental Trailer, RHIC, ATR, Tandem, etc.

- Brief description of the area including local objects of identification.
- Map co-ordinates of the area.

5.1.4 Exp. No. (LP)

- The Experiment No.(s) involved with this installation.

5.1.5 Contact (LP)

- Liaison Physicist requesting the installation.
- The Chairman of the Radiation Safety Committee can perform the functions of a Liaison Physicist.

5.1.6 Special Instructions

5.1.6.1 Replacement Device

- A Chipmunk replacing another, after annual shutdown and calibration, at the same location.

5.1.6.2 Local Area Monitor

- A Chipmunk used for audio / visual warning of radiation levels to personnel.

5.1.6.3 Marked Placement

- This Chipmunk has a marked location where it must be spotted. This location is determined by Fault Studies. Initially a Chipmunk designated for marked placement may not have a marked location.

5.1.6.4 Security System Device

- A Chipmunk that interlocks an Accelerator Facility to turn off the beam at a set level of radiation.

5.1.6.5 Security System Trip Level

- The level in mrem/hr at which an interlocking Chipmunk (5.1.6.4) will effect a trip.
- There are three trip levels: 50, 20 and 2.5 mrem/hr set by a 3-position switch in the interlocking hardware.

- The Quality Factor (QF) of the source of radiation and the QF setting of the Chipmunk also determine the trip level as detailed in the QF Matrix, Attachment 1.

5.1.6.6 Alarm Levels

- The radiation level in mrem/hr at which the computer alarms the Main Control Room (MCR) when the Chipmunk registers that level.
- There are Chipmunks that are not linked to the computer.
- There are Chipmunks linked to the computer that do not have an alarm level.
- Alarm levels for Protons and Heavy Ions may differ.

5.1.6.7 Notify Contact Immediately upon Completion (LP)

- The LP may requests to be informed of the completion of the Chipmunk installation.

5.1.7 Other Instructions (LP)

- The LP may list instructions pertaining to the Chipmunk installation that are not included under Special Instructions.

5.1.8 Requested By (LP)

- This is signed by the LP and initialed by the Chairman of the Radiation Safety Committee.

5.1.9 Date (LP)

- This is the date the Chipmunk Installation Request form BNL F 2948A was submitted.

5.1.10 Unit No. (ACG)

- This is a sequential number assigned to a Chipmunk when it is first calibrated after manufacture.

5.1.11 NMO # (CG)

- The NMO (Nuclear Monitor) number is the computer address that receives counts from the Chipmunk.

- The CG generates the computer addresses which become NMO numbers.

- The ACG assigns an NMO number to a Chipmunk location when a Chipmunk Installation Request is executed.

- The ACG assigns the NMO number to the Chipmunk while it is installed at a Chipmunk location.

- NMO numbers are not sequential. Missed numbers are spares.

5.1.12 Date (ACG)

- This is the date the ACG receives the form BNL F 2948A from the LP.

5.1.13 Location (RCD)

- This is the RCD description of the location of the Chipmunk.

- The RCD description is used in the RCD's Detector File List Program.

5.2 Completion of Lower Portion of White Form

5.2.1 Justification Remarks (LP)

- The LP states reason(s) for installation of Chipmunk.

- The LP records areas exclusive of Location (5.1.3) monitored by this Chipmunk.

5.2.2 Sign-Off

5.2.2.1 Access Controls Group (ACG)

- The ACG representative initials this box on completion of the Chipmunk installation.

5.2.2.2 Operations Coordinator (MC)

- The Operations Coordinator for the shift, or his representative, initials this box on completion of the Chipmunk installation.

5.2.2.3 Radiological Control Technician (RCT)

- The RCT initials this box on completion of the Chipmunk installation.

5.2.3 Installation Complete (ACG)

- The ACG representative signs here on completion of the Chipmunk installation.

5.2.4 Date

- The ACG representative records the date of completion of Chipmunk installation.

5.3 White Form Disposal

- The white copy of form BNL F2948A is saved with the Radiation Safety Committee records of Chipmunk Installation Requests.

5.4 Completion of Lower Portion of Yellow Form (ACG)

5.4.1 Dcon / Sis / Plc / Address

- The ACG records the type of data-communication system: DataCon, VME or PLC.

- The ACG records the computer address of the Chipmunk.

- The ACG initials on completion of the items listed in section 5.4.1.

5.4.2 Change of Placement Only

- The ACG verifies if the installation was only the change of spotting of the Chipmunk at the same location.

5.4.3 Placement

- The ACG verifies if the Chipmunk was spotted at the location.

5.4.4 Marked

- The ACG verifies if the spot for the Chipmunk is marked.

5.4.5 Cables Attached

- The ACG verifies all cabling for the Chipmunk installation is completed.

5.4.6 Power Up

- The ACG verifies the Chipmunk installation is powered.

5.4.7 Interlock Check

- The ACG verifies that the Interlocking function of the Chipmunk installation is operational.
- The Interlock is enforced with the Radioactive test source if the trip level is 2.5 mrem/hr or 20 mrem/hr.
- The Interlock is enforced with the Test button on the Chipmunk if the trip level is 50 mrem/hr.

5.4.8 Reset Check

- The ACG verifies the Resetting functions of the Chipmunk installation are operational.
- The local Reset function at the Chipmunk interface box must be verified.
- The remote Reset function at the MCR must be verified.
- RHIC chipmunks have only a Remote reset function, at the MCR.

5.4.9 PC Message Logging Check

- The ACG verifies the Logging function of the Chipmunk installation, at the MCR, is operational.

5.4.10 Warning Tag #

- The ACG installs a Security Warning Tag on the cable to the Chipmunk, at the Chipmunk installation.
- The ACG documents the Warning Tag #.

5.4.11 Sign-Off

5.4.11.1 Operations Coordinator

- The Operations Coordinator for the shift, or his representative, initials this box on completion of the Chipmunk installation.

5.4.11.2 Radiological Control Technician

- The RCT initials this box on completion of the Chipmunk installation.

5.4.12 Installation Complete (ACG)

- The ACG representative signs here on completion of the Chipmunk installation.

5.4.13 Date

- The ACG representative records the date of completion of Chipmunk installation.

5.4.14 Form Disposal

- The yellow copy of form BNL F2948A is saved with the ACG's records of Chipmunk Installation Requests.

5.5 Completion of Lower Portion of Green Sheet (MC)

5.5.1 Circle as Applicable (MC)

- The Operations Coordinator or representative circles the options and activities selected in 5.5.2 thru 5.5.5.

5.5.2 Assign / Verify Dcon / Sis / Plc Address

- The MC records the type of data-communication system: DataCon, VME or PLC.

- The MC records the computer address of the Chipmunk.

- The MC initials form after required data is recorded.

5.5.3 Verify Dcon / Sis / Plc Address and Description / Location with HP Detector File List

- The MC verifies the Chipmunk computer address correlates with the Chipmunk location in the RCD Detector File list (5.1.13). Initial form when addresses verified.

5.5.4 Enter / Verify Database NMO Number and Description

- The MC verifies the Database NMO Number and Description, entering them if necessary. Initial form when completed.

5.5.5 Enter / Verify Spreadsheet Neutron Monitor Name

- The MC verifies the Spreadsheet NMO name entering it if necessary. Initial form when complete.

5.5.6 Installation Complete (MC)

- The Operations Coordinator or representative signs here on completion of the Chipmunk installation.

5.5.7 Date

- The MC representative records the date of completion of Chipmunk installation.

- The MC representative retains Green copy for MC's Chipmunk installation records.

5.5.8 Form Disposal

- The green copy of form BNL F2948A is saved with the MC's records of Chipmunk Installation Requests.

5.6 Completion of Lower Portion of Orange Sheet (RCD)

5.6.1 Source Check

- The RCT verifies the Chipmunk installation is functional with a Radioactive test source. Initial form when completed.

5.6.2 Alarm Level Set

- The RCT verifies the Alarm level for the Chipmunk installation is set in the computer at MCR. Initial form when completed.

5.6.3 Update Map

- The RCT verifies the RCD Chipmunk Installation map is updated. Initial form when completed.

5.6.4 Update MCR Map

- The RCT verifies that the MCR Chipmunk Installation map is updated. Initial form when completed.

5.6.5 Installation Complete (RCD)

- The RCT signs here on completion of the Chipmunk installation.

5.6.6 Date

- The RCT records the date of completion of Chipmunk installation.
- The RCT retains Pink copy for RCD's Chipmunk installation records.

5.6.7 Form Disposal

- The pink copy of form BNL F2948A is saved with the RCD's records of Chipmunk Installation Requests.

6. Documentation

None

7. References

None

8. Attachments

8.1 Attachment 1 – Matrices for Correlating Radiation Source and Chipmunk Quality Factor

8.2 Attachment 2 – Chipmunk Installation Form

MATRICES FOR CORRELATING RADIATION SOURCE AND CHIPMUNK QUALITY FACTOR

CHIPMUNK QUALITY FACTOR SETTING

SOURCE	QF 1	QF 2.5	QF 5
MUONS, GAMMAS (QF 1)	400 *2.5 urem	1000 *1 urem	2000 *0.5 urem
GAMMAS + NEUTRONS (QF 2.5)	160 *6 urem	400 *2.5 urem	800 *1.3 urem
LOW NRG NEUTRONS (QF 5)	800 *12 urem	200 *5 urem	400 *2.5 urem

MATRIX - 1

Counts Per mrem

***urem/count**

This is the constant [VI (5)] in the Detector File List Program. There it is expressed in mrem/count, where:

2.5 urem = 0.0025 mrem

CHIPMUNK QUALITY FACTOR SETTING

SOURCE	QF 1	QF 2.5	QF 5
MUONS, GAMMAS (QF 1)	X 1	X 0.4	X 0.2
GAMMAS + NEUTRONS (QF 2.5)	X 2.5	X 1	X 0.5
LOW NRG NEUTRONS (QF 5)	X 5 *12 urem	X 2 *5 urem	X 1 *2.5 urem

MATRIX - 2

Meter Reading Multiplier for Radiation In mrem hr

WHERE:
Chipmunk Meter Reading x Matrix-2 Multiplier = mrem/hr

Attachment 1

CHIPMUNK INSTALLATION REQUEST

INSTALLATION REQUEST NO._____ REQUIRED DATE OF INSTALLATION:_____

LOCATION:_____

EXP. NO._____

CONTACT_____

SPECIAL INSTRUCTIONS:

REPLACEMENT DEVICE	☐ NO	☐ YES	(SEE INSTALLATION REQUEST NO._____)
LOCAL AREA MONITOR	☐ NO	☐ YES	
MARKED PLACEMENT	☐ NO	☐ YES	
SECURITY SYSTEM DEVICE	☐ NO	☐ YES	

SECURITY SYSTEM DEVICE TRIP LEVEL_____mR/hr.

ALARM LEVELS

PROTONS_____mR/hr. HEAVY IONS_____mR/hr.

NOTIFY CONTACT IMMEDIATELY UPON COMPLETION? ☐ YES ☐ NO

OTHER INSTRUCTIONS: _____

REQUESTED BY:_____ DATE:_____

UNIT #:_____ NMO #:_____

DATE:_____ LOCATION:_____

(ACG) (RCD)

JUSTIFICATION REMARKS:

SIGN-OFF

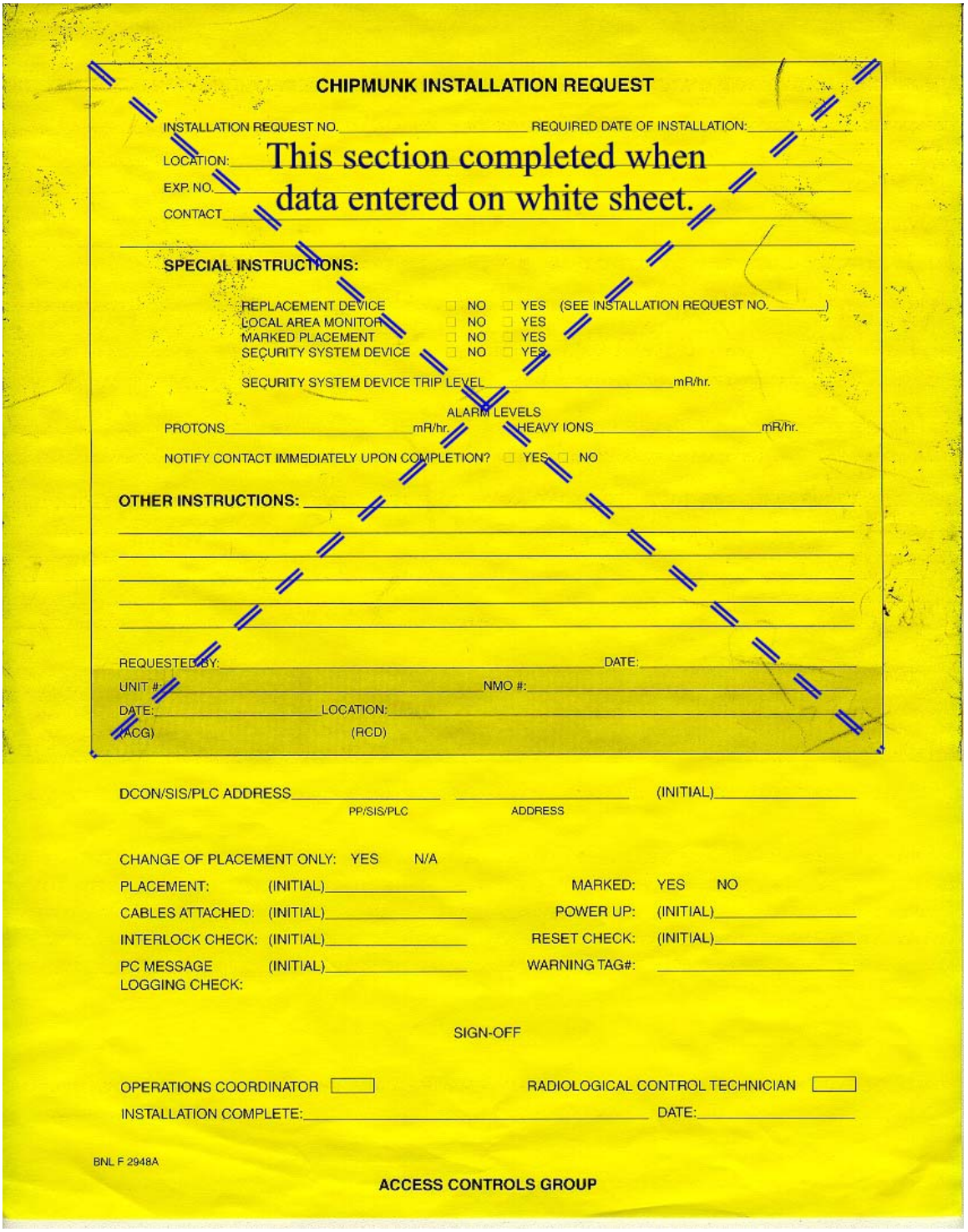
ACCESS CONTROLS GROUP: ☐ OPERATIONS COORDINATOR: ☐ RADIOLOGICAL CONTROL TECHNICIAN: ☐

INSTALLATION COMPLETE:_____ DATE:_____

BNL F 2948A

RADIATION SAFETY COMMITTEE

Attachment 2



CHIPMUNK INSTALLATION REQUEST

INSTALLATION REQUEST NO._____ REQUIRED DATE OF INSTALLATION:_____

LOCATION:_____

EXP. NO._____

CONTACT_____

This section completed when data entered on white sheet.

SPECIAL INSTRUCTIONS:

REPLACEMENT DEVICE ☐ NO ☐ YES (SEE INSTALLATION REQUEST NO._____)
LOCAL AREA MONITOR ☐ NO ☐ YES
MARKED PLACEMENT ☐ NO ☐ YES
SECURITY SYSTEM DEVICE ☐ NO ☐ YES

SECURITY SYSTEM DEVICE TRIP LEVEL_____mR/hr.

ALARM LEVELS

PROTONS_____mR/hr. HEAVY IONS_____mR/hr.

NOTIFY CONTACT IMMEDIATELY UPON COMPLETION? ☐ YES ☐ NO

OTHER INSTRUCTIONS: _____

REQUESTED BY:_____ DATE:_____

UNIT #:_____ NMO #:_____

DATE:_____ LOCATION:_____

(ACG) (RCD)

DCON/SIS/PLC ADDRESS_____ _____ (INITIAL)_____

PP/SIS/PLC ADDRESS

CHANGE OF PLACEMENT ONLY: YES N/A

PLACEMENT: (INITIAL)_____ MARKED: YES NO

CABLES ATTACHED: (INITIAL)_____ POWER UP: (INITIAL)_____

INTERLOCK CHECK: (INITIAL)_____ RESET CHECK: (INITIAL)_____

PC MESSAGE LOGGING CHECK: (INITIAL)_____ WARNING TAG#: _____

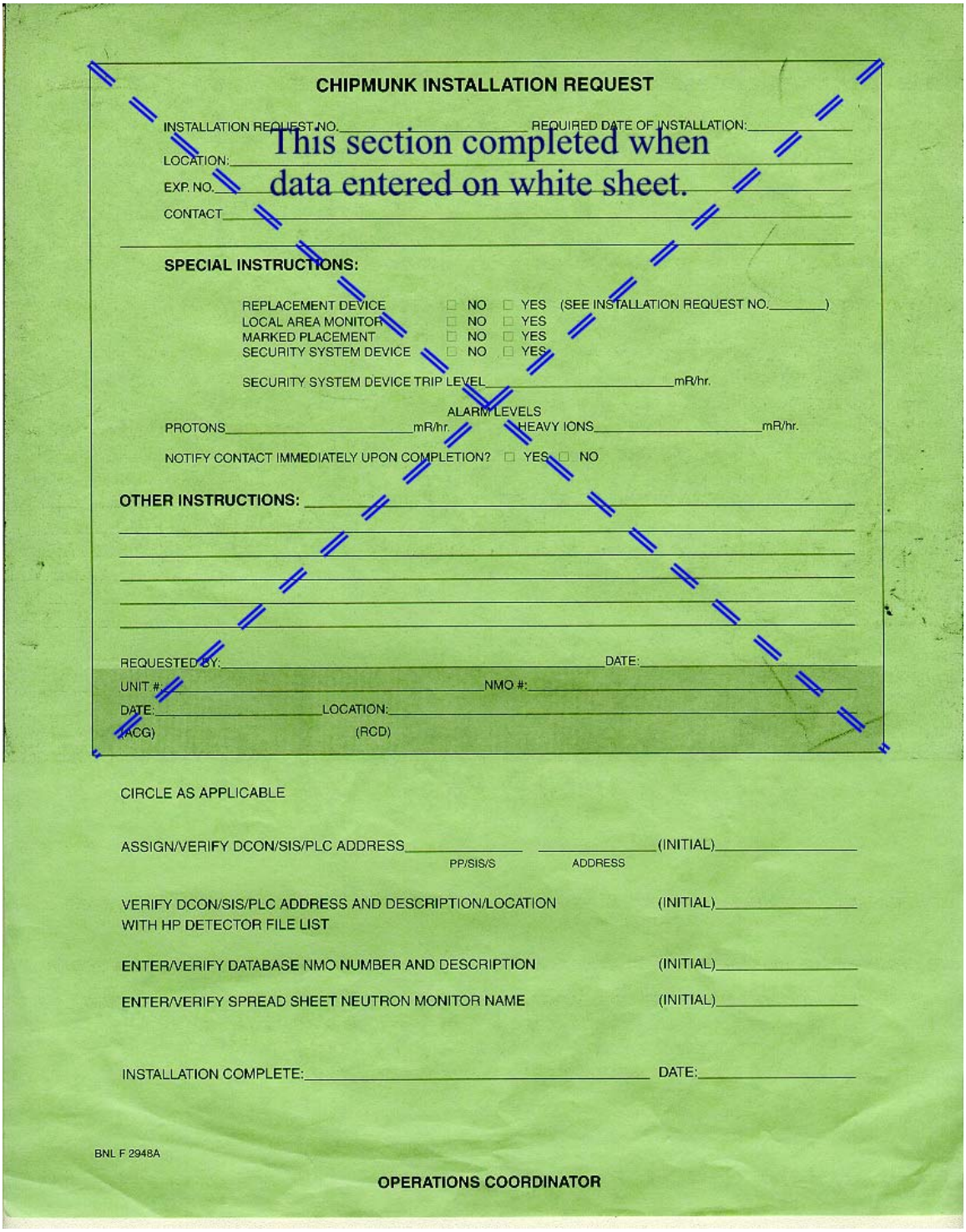
SIGN-OFF

OPERATIONS COORDINATOR ☐ RADIOLOGICAL CONTROL TECHNICIAN ☐

INSTALLATION COMPLETE:_____ DATE:_____

BNL F 2948A

ACCESS CONTROLS GROUP



CHIPMUNK INSTALLATION REQUEST

INSTALLATION REQUEST NO._____ REQUIRED DATE OF INSTALLATION:_____

LOCATION:_____

EXP. NO._____

CONTACT_____

This section completed when data entered on white sheet.

SPECIAL INSTRUCTIONS:

REPLACEMENT DEVICE ☐ NO ☐ YES (SEE INSTALLATION REQUEST NO._____)
LOCAL AREA MONITOR ☐ NO ☐ YES
MARKED PLACEMENT ☐ NO ☐ YES
SECURITY SYSTEM DEVICE ☐ NO ☐ YES

SECURITY SYSTEM DEVICE TRIP LEVEL_____mR/hr.

ALARM LEVELS

PROTONS_____mR/hr. HEAVY IONS_____mR/hr.

NOTIFY CONTACT IMMEDIATELY UPON COMPLETION? ☐ YES ☐ NO

OTHER INSTRUCTIONS: _____

REQUESTED BY:_____ DATE:_____

UNIT #:_____ NMO #:_____

DATE:_____ LOCATION:_____

(ACG) (RCD)

CIRCLE AS APPLICABLE

ASSIGN/VERIFY DCON/SIS/PLC ADDRESS_____ _____(INITIAL)_____
PP/SIS/S ADDRESS

VERIFY DCON/SIS/PLC ADDRESS AND DESCRIPTION/LOCATION (INITIAL)_____
WITH HP DETECTOR FILE LIST

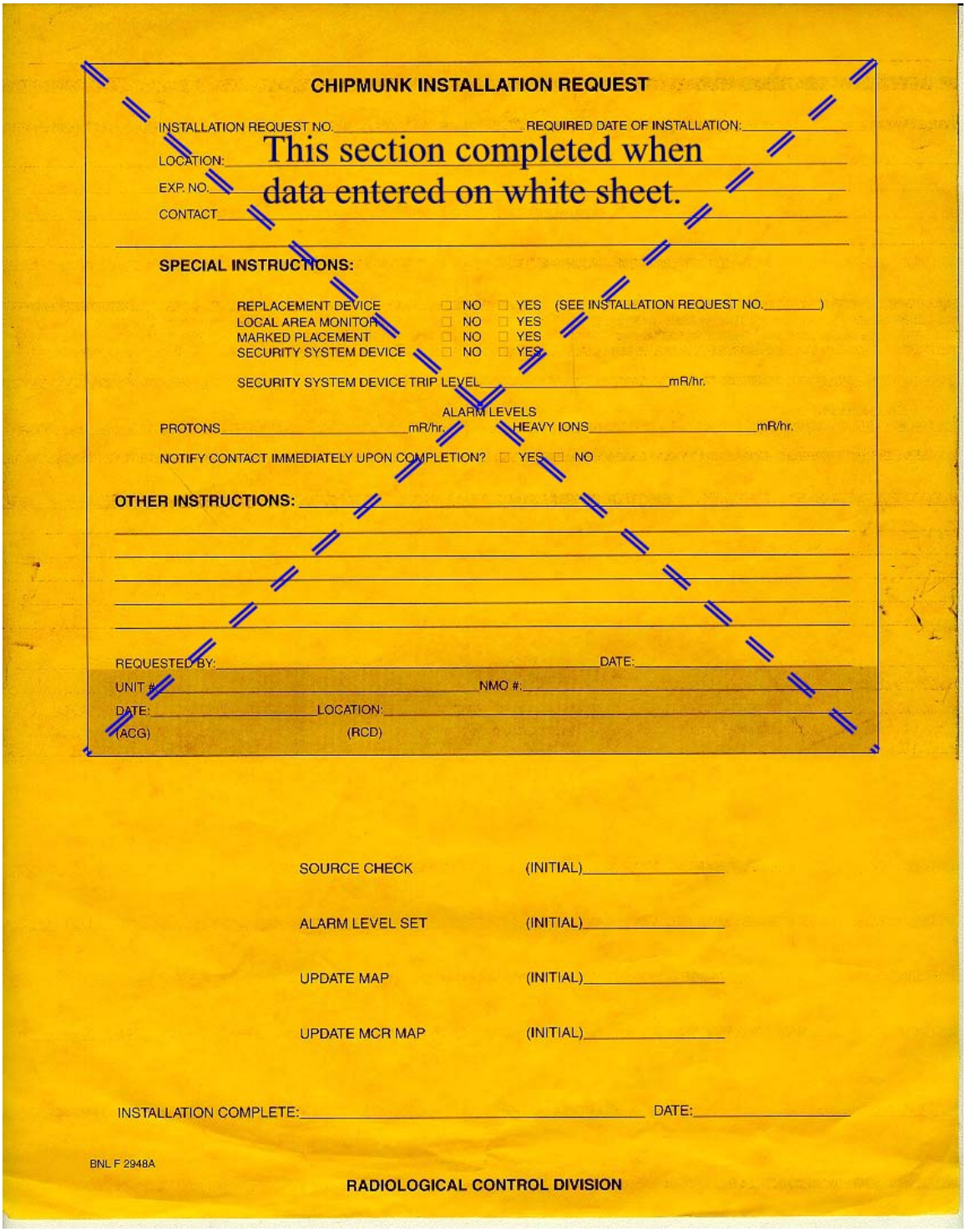
ENTER/VERIFY DATABASE NMO NUMBER AND DESCRIPTION (INITIAL)_____

ENTER/VERIFY SPREAD SHEET NEUTRON MONITOR NAME (INITIAL)_____

INSTALLATION COMPLETE:_____ DATE:_____

BNL F 2948A

OPERATIONS COORDINATOR



CHIPMUNK INSTALLATION REQUEST

INSTALLATION REQUEST NO._____ REQUIRED DATE OF INSTALLATION:_____

LOCATION:_____

EXP. NO._____

CONTACT_____

This section completed when data entered on white sheet.

SPECIAL INSTRUCTIONS:

REPLACEMENT DEVICE ☐ NO ☐ YES (SEE INSTALLATION REQUEST NO._____)
LOCAL AREA MONITOR ☐ NO ☐ YES
MARKED PLACEMENT ☐ NO ☐ YES
SECURITY SYSTEM DEVICE ☐ NO ☐ YES

SECURITY SYSTEM DEVICE TRIP LEVEL_____mR/hr.

ALARM LEVELS
PROTONS_____mR/hr. HEAVY IONS_____mR/hr.

NOTIFY CONTACT IMMEDIATELY UPON COMPLETION? ☐ YES ☐ NO

OTHER INSTRUCTIONS: _____

REQUESTED BY:_____ DATE:_____

UNIT #:_____ NMO #:_____

DATE:_____ LOCATION:_____

(ACG) (RCD)

SOURCE CHECK (INITIAL)_____

ALARM LEVEL SET (INITIAL)_____

UPDATE MAP (INITIAL)_____

UPDATE MCR MAP (INITIAL)_____

INSTALLATION COMPLETE:_____ DATE:_____

BNL F 2948A

RADIOLOGICAL CONTROL DIVISION